

## TREATMENT OPTIONS FOR OBSTRUCTIVE SLEEP APNEA SYNDROME



Finding the  
treatment  
that best  
meets your  
needs

 Stevens  
*Sleep Center*  
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a wellness booklet from  
American Academy  
of Sleep Medicine



# Dear Reader:

Sleep isn't just "time out" from daily life. It is an active state important for renewing our mental and physical health each day. More than 100 million Americans of all ages, however, regularly fail to get a good night's sleep.

At least 84 disorders of sleeping and waking lead to a lowered quality of life and reduced personal health. They endanger public safety by contributing to traffic and industrial accidents. These disorders can lead to problems falling asleep and staying asleep, difficulties staying awake or staying with a regular sleep/wake cycle, sleepwalking, bedwetting, nightmares, and other problems that interfere with sleep. Some sleep disorders can be life-threatening.

Sleep disorders are diagnosed and treated by many different healthcare professionals, including general practitioners and specialists in neurology, pulmonary medicine, psychiatry, psychology, pediatrics, and other fields. As part of its mission, the American Academy of Sleep Medicine (AASM) strives to increase awareness of sleep disorders in public and professional communities. The AASM is the major national organization in the field of sleep medicine. We represent several thousand clinicians and researchers in sleep disorders medicine.

For more information about sleep disorders, contact your healthcare professional. For a list of accredited member sleep disorders centers near you, write to us or visit our web site.

Sincerely,

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If you have experienced symptoms of, or have been diagnosed with obstructive sleep apnea syndrome (OSAS), you know how seriously it can affect your health and lifestyle, with symptoms ranging from excessive daytime sleepiness to performance at home and at work. Did you also know that OSAS could lead to hypertension and other heart problems?

OSAS is a disorder involving frequent partial or complete collapse of the breathing passageway during sleep. The process by which the airway gets blocked during sleep is rather complicated. During sleep, the muscles in the throat relax, making the airway more susceptible to collapse. The negative pressure of air pulled by the lungs through a narrow airway may cause the breathing passage to collapse, much as a straw flattens and collapses if you pinch one end closed while sucking on the other end. With the airway blocked, no breathing occurs and oxygen levels drop. In order to breathe again you must wake up briefly, which ultimately

causes non-restful sleep.

Proper treatment can prevent or reverse the serious consequences associated with OSAS, so you and your healthcare professional should consider a number of treatment options. Correcting your OSAS may involve one or more of the treatments outlined in this brochure.

## Lifestyle Changes

Some behaviors or habits can make OSAS worse. For some people, certain lifestyle changes can reduce or eliminate sleep apnea.

**Sleep-position training.** Sleeping on your back allows gravity to pull on the soft tissues at the back of your throat and neck, causing the breathing passageway to narrow or collapse completely. Sleep-position training can be used to help keep you on your side during sleep, which can lead to an improvement in your symptoms.

Sleep-position training can be accomplished in several ways. The simplest approach, called the "tennis ball technique," involves sewing a pocket onto the back of your pajama top and inserting tennis balls into it. If you start to roll onto your back during sleep, the pressure from the balls will encourage you to roll back to your side. A foam wedge strapped to your back can accomplish the same result. Commercial devices with alarms are also available to help you stay on your side during sleeping. Check with your healthcare professional to find out if this type of treatment may be helpful to you.

Weight loss and regular exercise. For people who are overweight and suffer from OSAS, weight loss alone may be the most helpful treatment. However, once you reach your desired weight, it is important to maintain that weight because snoring and apneas are likely to return with weight gain. Consult a healthcare professional to find out about safe and effective weight-loss programs.

**Quitting smoking.** Recent evidence suggests that the irritation caused by smoking may contribute to the severity of snoring and sleep apnea. Therefore, "kicking the habit" may improve your breath during sleep. Talk with your healthcare professional about safe and effective ways to quit smoking.



**Avoiding alcohol and sedatives.** Even one glass of wine just before bed can result in a worsening of your snoring and apnea. You should avoid drinking alcohol for at least four hours before bed. Alcohol and sedative medications (such as sleeping pills, muscle relaxants, antianxiety

drugs, and some pain medications) can cause the muscles in your throat to relax more than usual and cause an airway obstruction. Alcohol and sedative drugs also make it more difficult for the brain to "wake up" and notice a lack of oxygen in the system, which results in longer and more dangerous abnormal breathing periods. You can discuss appropriate modification of medicine and alcohol consumption with your healthcare professional.

## Medical Therapy

**Positive airway pressure devices.** Positive airway pressure (PAP) is a highly effective therapy that uses air pressure to prop the airway open during sleep. PAP machines work by pumping room air through a hose to a mask that fits over the nose or the nose and mouth (Fig. 1). The mask is held in place with straps. The appropriate PAP pressure level is determined during a sleep study arranged by your healthcare professional or a sleep medicine specialist.

Nasal pillows (Fig. 2) are an alternative to the mask method of PAP delivery. These are soft pieces of plastic that are placed directly into the nostrils.



Figure 1



Figure 2

Several brands of PAP devices are currently available. Your healthcare professional can provide recommendations.

While most patients do well with PAP therapy, a few may experience dryness in the nose or feelings of claustrophobia. These and other problems can be overcome with a few adjustments. A humidifier can be used to reduce dryness, and relaxation techniques can help relieve feelings of claustrophobia.

**Oral appliances.** These devices work to keep the airway open by holding the tongue or jaw forward, increasing the airway space behind the tongue. They can be effective for people who have mild to moderate apnea. An experienced dentist associated with a sleep disorders center or laboratory usually fits these appliances.

*Tongue-retaining devices.* These devices are placed in the mouth just before bed and create a slight suction, which holds the tongue forward to keep it from falling back into the throat.

*Jaw-advancement devices.* These appliances are made to fit the top and bottom teeth in a way that pulls the lower jaw slightly forward.

## Surgery

An operation may be an option if your healthcare professional finds a cause for obstruction in your airway or if more conservative treatments have not worked. Whatever type of operation is recommended, be aware of expected success rates as well as all possible risks and side effects before proceeding.



While an operation can be an effective treatment for some patients, it is not the right choice for everyone.

**Nasal operations.** Nasal surgery is used to remove blockages in the nose or to repair a deviated septum (a displacement of the wall that divides the nose into halves). These operations may be one part of an overall plan to treat apnea, and are generally used along with other forms of treatment or other operations. Nasal surgery alone is rarely adequate to eliminate apneas.

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**Laser-assisted uvulopalatoplasty (LAUP).** This procedure is used mainly for the treatment of snoring. With LAUP, the surgeon uses a laser to remove part of the uvula (the soft, fleshy projection that hangs in the back of the throat) and soft palate. The procedure takes place during several sessions in a doctor’s office. While this technique may be helpful, patients need to be aware that its effectiveness in the treatment of sleep apnea is limited.

**Uvulopalatopharyngoplasty (UPPP).** This operation involves removing the uvula, the tonsils, and part of the soft palate. Approximately 50% of patients who undergo this operation are helped by it, although fewer are cured. Side effects, such as severe throat pain, nasal-sounding speech, and the regurgitation of liquids into the nose when swallowing, have been reported.

**Inferior sagittal mandibular osteotomy (ISO) and geniohyoid advancement (GA) with hyoid myotomy (HM).** The ISO and GAHM are procedures that enlarge the airway. ISO and GA is an operation that includes bringing the lower bone of the jaw and tongue forward. The HM operation includes attaching the hyoid (the u-shaped bone at the angle of the chin and neck) to the larynx (voicebox). The effectiveness of these operations can depend on a person’s weight and bone structure.

**Maxillomandibular advancement (MMO).** This surgery involves cutting the upper and lower jaws and moving them both forward. This operation is done under general anesthesia and requires a hospital stay of a few days. After the operation, the jaw is wired shut to hold it in place for about four weeks. A liquid diet is required, and weight loss often results. Once the wires are removed, orthodontic work may be needed to realign the teeth so they fit together properly. This treatment is time-consuming and expensive, but its results are positive for many patients. The best candidates for this type of treatment are those born with a smaller-than-normal jaw or a jaw that is set too far back.

**Somnoplasty.** This procedure uses radio frequency energy waves to shrink upper airway tissues in an

effort to prevent collapse of the airway. A probe is placed into the airway tissues to deliver the energy. Somnoplasty can reduce snoring and may improve sleep apnea. Studies have not yet determined which patients may benefit from this procedure. You should talk with a sleep medicine specialist to see if you might benefit from this procedure.

**Laser midline glossectomy (LMG) and ligualplasty.** These operations are rarely used. They involve enlarging the area behind the tongue by removing a portion of the back half of the tongue.

**Tracheostomy.** This surgery is rarely used to treat sleep apnea, and is only applicable when all other options have failed. It involves the creation of a small surgical opening in the windpipe below the larynx. The tracheostomy bypasses any obstructions in the throat and allows air to flow freely into the lungs while the patient is sleeping. The opening is covered during the day and normal breathing and speech resume.

## Medications and Alternative Treatments

Medications used alone are of limited benefit in the treatment of snoring and OSAS. They may be most useful in mild apnea or when used as part of an overall treatment program.

**Nasal sprays.** Over-the-counter nasal sprays that help clear the nasal passages can be habit-forming and should not be used for more than a few days. Prescription nasal sprays can help unblock the nose, but sometimes take days or weeks to work. Nasal

sprays are usually not helpful if there is a permanent blockage caused by a deviated septum or other abnormality.

**Decongestants.** Oral medications to relieve congestion in the nose are sometimes helpful, but are not often a successful treatment for sleep apnea. Although decongestants may help you breathe better, they can cause difficulty falling asleep, staying asleep, or both.

**Oxygen.** This treatment may be used to correct low oxygen levels in the blood due to sleep apnea, but doesn't often improve the apnea itself. It may, however, be used along with PAP treatment.

## Follow-Up Care

With many forms of therapy it is important to have a follow-up sleep study done by a sleep medicine specialist to determine success. Regular follow-up appointments with your healthcare professional are also essential because the severity of your apnea may change with age. If your snoring resumes or if you are sleepy during the day, it may mean the apnea has returned, and additional or other treatment may be necessary.



"Keep a regular schedule."

## How to Sleep Well

These guidelines can be used for a variety of sleep disorders. They will help most people sleep better. For more specific guidelines for your particular sleep disorder, consult your healthcare professional.

- ◆ Maintain a regular wake time, even on days off work and on weekends.
- ◆ Try to go to bed only when you are drowsy.
- ◆ If you are not drowsy and are unable to fall asleep for about 20 minutes, leave your bedroom and engage in a quiet activity elsewhere. Do not permit yourself to fall asleep outside the bedroom. Return to bed when, and only when, you are sleepy. Repeat this process as often as necessary throughout the night.
- ◆ Use your bedroom only for sleep, sex and times of illness.
- ◆ Avoid napping during the daytime. If you nap, try to do so at the same time every day

and for no more than one hour. Mid-afternoon (no later than 3:00pm) is best for most people.

- ◆ Establish relaxing pre-sleep rituals such as a warm bath, light bedtime snack, or ten minutes of reading.
- ◆ Exercise regularly. Confine vigorous exercise to early hours, at least six hours before bedtime, and do mild exercise at least four hours prior to bedtime.
- ◆ Keep a regular schedule. Regular times for meals, medications, chores, and other activities help keep the inner clock running smoothly.
- ◆ While a light snack before bedtime can help promote sound sleep, avoid large meals.
- ◆ Avoid ingestion of caffeine within six hours of bedtime
- ◆ Don't drink alcohol when sleepy. Even a small dose of alcohol can have a potent effect when combined with tiredness.
- ◆ Avoid the use of nicotine close to bedtime or during the night.
- ◆ Sleeping pills should be used only conservatively. Most doctors avoid prescribing sleeping pills for periods longer than three weeks.
- ◆ Do not drink alcohol while taking sleeping pills or other medications.

## **Further Reading on Treatments for Obstructive Sleep Apnea**

**Snoring and Sleep Apnea: Personal and Family Guide to Diagnosis and Treatment**, by Ralph Pascualy, MD, and Sally Warren Soest (Raven Press, New York, 1994)

**Stop Your Husband from Snoring**, by Derek S. Lipman, MD (Rodale Press, Emmaus, PA 1990)

**Phantom of the Night**, by T. Scott Johnson, MD, and Jerry Halberstadt (New Technology Publications, Inc., Cambridge, MA 1995)

**Wellness booklets available through the American Academy of Sleep Medicine**

- Circadian Rhythms
- Coping with Shift Work
- Drowsy Driving
- Insomnia
  - "My Child Can't Sleep"
  - "My Child Snores"
- Narcolepsy
- Obstructive Sleep Apnea and Snoring
- Overnight Sleep Studies
- Parasomnias
- Positive Airway Pressure Therapy for Sleep Apnea
- Restless Legs Syndrome and Periodic Limb Movement Disorder
- Sleep and Depression
- Sleep and Health
- Sleep and Heart Disease
- Sleep as We Grow Older
- Sleep Diary
- Sleep Hygiene
- Sleep in Women
- Sleepwalking and Other Childhood Parasomnias
- Teenagers, Young Adults & Sleep
- Treatment Options for Obstructive Sleep Apnea Syndrome

The American Academy of Sleep Medicine (AASM) is proud to provide these wellness booklets about sleep habits and sleep disorders to the public.

Please send one business-size self-addressed stamped envelope *per booklet* to the AASM, along with a request specifying which booklet you would like to receive.

**American Academy of Sleep Medicine**

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Most wellness booklets include reading lists for additional information.